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Selen Sarisoy Guerin and Stefano Manzocchi

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Email: llee@luiss.it

Political Regime and Vertical vs. Horizontal FDI*

Selen Sarisoy Guerin[a] and Stefano Manzocchi[b]

Abstract

We introduce the effect of the political regime in a model of North-South bilateral foreign direct investment (FDI), and test whether it matters for the nature of FDI inflows to emerging markets. Alternative political regimes in the host country may affect the incentive for foreign investors to implement horizontal rather than vertical FDI, if the political expropriation risk is different for the two kinds of investment. We test the model in a panel of 14 source countries and 24 host countries over 1992-2004, and find that autocracies are likely to receive relatively more FDI of the vertical type, while democracies are more likely to be associated with horizontal FDI inflows.

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[a] Selen Sarisoy Guerin, Centre for European Policy Studies (CEPS), 1 Place du Congres, 1000 Brussels, Belgium.

[b] Stefano Manzocchi, Department of Economics, LUISS University, Via Tommasini, 1, 00162 Rome, Italy.

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1. Introduction

The rise in foreign direct investment (FDI) flows to emerging countries is a key element of the recent globalization. Since the early nineties, and throughout the beginning of this century, FDI inflows have amounted to a large portion of the emerging markets' GDP (see Figure 1). Interestingly, among major FDI recipients there are both democratic countries and autocracies (e.g. China, Egypt, Morocco, according to the classification of best renowned academic sources). In principle, democracy may affect a host-country's FDI attractiveness in at least two ways: first, by raising total factor productivity hence the expected return on investment; second, by reinforcing property rights and reducing the risk of expropriation for foreign investors. Another research question is whether alternative political regimes in the host country might affect the incentive for foreign investors to implement horizontal rather than vertical FDI.

In this paper, we introduce the effect of the political regime in a simple model of North-South bilateral FDI, where horizontal FDI (HFDI) is "market seeking", while vertical FDI (VFDI) is mainly "cost-saving".[1] Anecdotal evidence from firms' experience suggests that FDI to emerging markets is based on a mix of "vertical" and "horizontal" motivations. The empirical literature has either shown little evidence of purely vertical FDI, or that it is difficult to identify VFDI, while there is considerable support for the HFDI hypothesis. Some studies have been concentrating on finding better measures of relative endowments to solve the 'vertical' FDI puzzle: interestingly, some of them recognize that even VFDI could be partly motivated by market-seeking reasons.[2] Simply it is difficult to imagine that an investor will move its production location to a host country, only to export all output to third countries.

Alternative political regimes in the host country may affect the incentive for horizontal vis-à-vis vertical FDI, for instance if the cost of expropriation is different for the two types of investment. It has been argued that in democratic political regimes, expropriation risk is reduced for the foreign investor, along with other sources of risk and uncertainty.[3]

[1] The "knowledge-capital" (KC) model by Carr, Markusen and Maskus (2001) acknowledges that FDI has both horizontal and vertical elements.
[2] See for instance Braconier et al. (2002) and (2005).
[3] Jensen (2006) provides empirical evidence on the relationship between democracy and expropriation risk.

One reason for this is that expropriation can be more costly for democracies: exclusion from international markets or less preferential treatment, that is likely to come back as a retaliation by foreign partners, might endanger the incumbents' re-election chances. Aizenman (1991) argues that more trade dependency reduces the incentive to default on external debt. Since by definition VFDI creates more trade dependency than HFDI, one can extend this reasoning and argue that the *probability* of expropriation by host countries would be lower in the case of vertical FDI. Hence, we could expect to see relatively more HFDI in democratic countries because of reduced political risk, and relatively more VFDI in autocratic countries, as foreign investors anticipate a lower probability of expropriation in this case. However, Aizenman and Marion (2004) show that expropriation would be more *costly* for the investors in the case of vertical FDI, since it threatens the whole supply-chain. Therefore, whether democracies (autocracies) receive more horizontal (vertical) FDI is an empirical question.

Here we investigate the empirical relation between democracy (autocracy) and the nature of FDI inflows (vertical versus horizontal) to emerging countries, using a dataset of 14 source countries and 24 host countries over 1992-2004. Our findings indicate that autocracies are likely to receive relatively more FDI of the vertical type, while democracies are more likely to be associated with horizontal FDI inflows.

Section two provides a concise review of the recent literature on the economic effects of political regimes, the impact of institutions on FDI, and of the behaviour of FDI in the presence of political or economic risk. Section three sets simple models of horizontal and vertical FDI with a positive probability of expropriation by the host country government, and derives a empirically testable equation drawing on them. In sections four, we discuss empirical results and advance some alternative explanations for them. Section five concludes.

2. Literature

The econometric literature on the relationship between political regime and FDI is recent, and there are only a few studies that examine this relationship within the scope of the 'institutional determinants' of FDI. The literature on democracy and economic

development refers to the relationship between democracy and 'investment' mainly as a conduit of the relationship between democracy and growth. The question is still debated whether democracy promotes growth or not, and the literature on the effects of democracy on economic development is divided. Some argue that the relationship is positive and significant and the causality runs from democracy to growth (see e.g. Roll and Talbott 2003; Papaioannou and Siourounis 2004; Giavazzi and Tabellini 2005; Rodrik and Wacziarg 2005). Another strand of literature examines the relationship in reverse causation, i.e., running from per capita income to democracy (Lipset 1959; Acemoglu et al 2005). Others argue that the lack of statistical evidence is due to misspecification of the relationship, e.g. failing to account for endogeneity in the empirical models and failing to model the democracy-growth relationship as a two-way causal relationship (Robinson, 2006). Doucouliagos and Ulubasoglu (2006) examine the relationship between democracy and growth using meta-regression analysis on 470 estimates from 81 papers. They find that democracy does not seem to have a *direct* effect on growth. However, it is associated with robust and significant *indirect* effects on growth through higher human capital accumulation, lower inflation and higher economic freedom.

In the democracy-economic development literature, a positive relationship between democracy and investment is assumed but generally not thoroughly examined. Oliva and de Batiz (2002) find an indirect effect of democracy on growth: the rule of law influences growth indirectly by encouraging FDI. Persson (2005), and Persson and Tabellini (2006a; 2006b), argue that if democracy has a positive effect on growth and long-run income, this should be channelled by the impact of democracy on investment. They also emphasize that investment reacts to expected, not current, returns, hence the persistence and credibility of democracy is a key issue. Gerring et al. (2005) find FDI has a positive and mostly significant effect on growth when democracy is treated as a *stock* variable. Consequently, they suggest that countries' experience with democracy through history helps them to accumulate a democratic capital which can be treated as a stock variable. They find that it is a country's experience with democracy that has a significant effect on growth, rather than the current political regime itself. The same idea is also used by Persson and Tabellini (2006b). They argue that people's appreciation of democracy in a

given country does not come by overnight, and that "democratic capital" can be envisaged as the accumulation of a stock of civic and social assets.

More specific examples of democracy-FDI literature fall under the category of 'institutional factors of FDI'. There are only a few studies that examine the effect of political regime on FDI, while most empirical work concentrates on the 'quality of institutions'. Using both cross-section and panel data analysis, Busse (2003) finds that democracy raises FDI inflows in emerging countries. Busse and Hefeker (2005) show that government stability, the absence of internal conflict, and basic democratic rights are significant determinants of foreign direct investment inflows. Guerin and Manzocchi (2006) show that democracy in the host country has a positive effect on North-South FDI flows, after controlling for "gravity" variables and privatization proceeds.

Benassy-Quéré et al (2005) examine the institutional determinants of FDI, mainly focusing on 'institutional quality' and 'institutional distance' concepts. They find that 'good institutions' almost always increase the amount of FDI. This effect, they argue, is independent of the effect of GDP per capita. Other studies that discuss the relationship between institutions and FDI are Kinoshina and Campos (2003), who focus on transition countries; and Méon and Sekkat (2004) who focus on MENA countries.

There are also some empirical studies that contribute to the FDI-democracy debate from the political science side. For example, Li and Resnick (2003) show that when the level of property rights protection is controlled for, democracy reduces FDI to developing countries. Jakobsen and Soysa (2006) examine the same question and find that such negative relationship between democracy and FDI is fully dependent on sample size and estimation methodology. Their results support a strong positive relationship between democracy and FDI in developing countries. Based on data from insurance companies and rating agencies, Jensen (2006) shows that democracy in emerging countries reduces expropriation risk for foreign investors.

Although they do not directly examine the democracy-FDI question, Eichengreen and Leblang (2006) discuss the relationship between democracy and globalization. Their findings indicate that there is a positive two-way relationship between the two variables. They argue that there is a positive feedback from financial globalization to political democratization: in financially open markets the government and the central bank must

be transparent to retain the confidence of the markets, and transparency is detrimental to autocratic regimes. Quinn (2000) looks at financial openness and democracy using the POLITY dataset of the University of Maryland, while Brune and Guisonger (2003) use Przeworski et al's (2000) democracy indicator. They both report a positive impact of democratic openness on financial openness.

In our empirical contribution, we look at the relation between political regime and the type of FDI host countries attract. In the literature of the mid-1980s, FDI was conceptually separated into two distinct categories: vertical and horizontal. VFDI models postulate that the firm can geographically separate production by stages. In the early models of Helpman (1984) and Helpman and Krugman (1985), multinationals are firms that geographically fragment the production process, and they arise only if countries differ sufficiently in their relative endowments of capital and labour. On the other hand, HFDI models predict that multinational activity will arise between similar countries, given moderate to high trade costs (Markusen, 1984). A puzzling issue here has been the scant empirical support for "purely" vertical FDI. As the capital-flow approach to FDI indicates, capital should flow from where it is abundant to where it is scarce. However, even when one examines North-South FDI flows, relative factor endowments alone do not turn out to be significant determinants of FDI. Recently, empirical works on the "knowledge capital" model of FDI under imperfect competition have shown that VFDI can be accounted for by a combination of factor-endowment differential and country economic dimension.[4]

Our reasoning benefits from an earlier article by Aizenman (1991) who argues that more trade dependency mitigates the temptation to default on external debt, as retaliation by trade partners makes expropriation more costly. A similar argument can be made for FDI expropriation: vertical FDI is associated with greater trade dependency in the host country than horizontal FDI, as a larger part of the output generated by FDI is for export, hence the costs of trade retaliation should be larger for the host country in the case of the nationalization of vertical FDI. Hence, the probability of VFDI expropriation could be lower than for HFDI. Interestingly, in a recent paper Aizenman and Marion (2004) examine the role of uncertainty on vertical and horizontal FDI. Their model shows that as

[4] See Braconier et al. (2002) and (2005).

political and economic uncertainty associated with the supply chain increases, the expected return on vertical FDI decreases, while the expected return on horizontal FDI increases. The rationale is that expropriation of vertical FDI may lead to the disruption of the foreign investor's whole supply chain if production is fragmented, while horizontal FDI may allow to diversify risk when political and economic uncertainty rises. Consistently, they find evidence that volatility and sovereign risk have a greater negative effect on vertical FDI than on horizontal FDI.

Therefore, we can think of two opposite forces at play: on the one hand, trade dependency makes the *probability* of expropriation by the host country lower in the case of vertical FDI; on the other hand, expropriation is more *costly* for foreign investors in the case of vertical FDI, as the whole supply chain is at stake. Which of these two effects prevails in affecting the type of FDI flowing from advanced to emerging countries, is a matter of empirical analysis. We argue in this paper that, to the extent that political regimes affect uncertainty or sovereign risk, this will help determine whether the Southern host country gets mostly 'vertical' or 'horizontal' FDI. The following section depicts the mechanics of how the probability of expropriation might influence the type of FDI flows to emerging countries.

3. Horizontal and vertical FDI, expropriation risk and political regime

We start from a very simple model of the choice of investing abroad in the presence of a positive probability of expropriation in the host country. The model draws on Ottaviano (2005), and is a static model meant to lead to an empirical equation that can be tested with panel data. We consider the choice of a firm located in the North between investing or not in a host country in the South, respectively in the case of horizontal and vertical FDI. The incentive for horizontal FDI is of "market seeking" nature, while the incentive for vertical FDI is due to a "cost saving" element, consistently with most of the recent literature.[5]

[5] "Cost saving" is referred to labour cost only: this means that we do not consider the natural-resource motivation for FDI.

In the case of horizontal FDI (Markusen, 1984), the firm operates under monopolistic competition hence it is a price-setter of its own variety of the differentiated good. Price exceeds marginal cost:

$$p = \left(\frac{\varepsilon}{\varepsilon - 1} \right) \cdot c > c \qquad (1)$$

and mark-up is given by:

$$\frac{p}{c} = \frac{\frac{\varepsilon}{\varepsilon - 1} c}{c} = \frac{\varepsilon}{\varepsilon - 1} \qquad (2)$$

where ε is the elasticity of demand perceived by the firm under monopolistic competition. Operating profits are given by:

$$\pi = p \cdot q - c \cdot q \qquad (3)$$

Or, given (2), by

$$\pi = \frac{c}{\varepsilon - 1} \cdot \frac{p}{p} \cdot q \cdot \frac{E}{E} \qquad (4)$$

where E is the total value of sales in a national market. Defining the firm's market share in a given market as $s = \frac{p \cdot q}{E}$ one can see that:

$$\pi = \frac{s \cdot E}{\varepsilon} \qquad (5)$$

In the case of firms exporting to a national market from abroad, however, there are trade costs (modelled as "iceberg" costs) that reduce the value of the firm's sales:

$$\pi = \frac{\varphi s \cdot E}{\varepsilon} \qquad (6)$$

where φ is a measure of the inverse of trade costs or barriers, with $0 \leq \varphi \leq 1$.

Let us now define the choice of a Northern firm (which always produces for its own national market) between exporting to the Southern country, or going for a horizontal FDI meant to serve the Southern internal market. Let us suppose, for simplicity, that both a multinational (MNE) and a national (NE) enterprise share the same fixed costs for the headquarters (H) and for each productive site (F). Let us also suppose that market size as well as demand elasticity are the same in the North and in the South, but that there exists a positive probability of expropriation (η) of the FDI by the Southern government. In this case, and under the assumption that the entrepreneur is risk neutral, the global profits for being multinational are:

$$\pi^{MNE} = \frac{sE}{\varepsilon} + (1-\eta)\frac{sE}{\varepsilon} - F - F - H \qquad (7)$$

While for a Northern firm exporting to the South, global profits are:

$$\pi^{NE} = (1+\varphi)\frac{sE}{\varepsilon} - F - H \qquad (8)$$

The firm then becomes multinational if $\pi^{MNE} > \pi^{NE}$ which is equivalent to:

$$(1-\varphi-\eta)\frac{sE}{\varepsilon} > F \qquad (9)$$

that is the firm will make an horizontal FDI the larger trade costs and market size, and the lower the probability of expropriation, given s, F and ε.[6]

Let us now turn to the case of vertical FDI (Helpman, 1984; Helpman and Krugman 1985). Here, we assume perfect competition and that the production process can be split into two steps with different factor intensities, say intermediate production (high capital intensity) and assembly (high labour intensity). For a Northern firm, it is always convenient to produce the intermediate good at home, while it might be convenient to assembly in the Southern country. Once again, there are trade costs (modelled as "iceberg" costs) that reduce the value of the firm's sales, but with two additional assumptions. First, we assume for simplicity that these costs only pertain to the step of selling the assembled good to final customers (or, in other words, that intra-firm trade is costless); second, we assume that trade costs are zero in each export market where the firm has established some production segment. This amounts to say that once a firm has a slice of its production process in two given countries, trading between those two locations is costless for that firm.[7]

In this case, each firm produces a constant unit amount of final output which is sold at price p to final consumers, and has unit administrative costs (A) for producing in each locations, unit costs for producing intermediate components (c) and for assembly (a).

[6] In equilibrium, the market share s depends on the number of firms that decide to become multinational, hence it is endogenous (see Ottaviano, 2005). This, however, does not affects the results concerning the relations between FDI, country size and expropriation probability.

[7] It would be enough for our purposes to assume that trade costs are lower (instead of nil) between two locations where the firm has a part of its production process.

Intermediates are always produced in the Northern country. The unit cost of assembly in different countries depends on their relative labour endowments, and it is lower in the Southern country a*=α(a), with α less than one.

Ex-ante net revenues for the multinational enterprise are:

$$R^{MNE} = (1-2\gamma)(1-\lambda)\varphi p + 2\gamma(1-\lambda)p - c - \alpha a - 2A \qquad (10)$$

where φ is a measure of the inverse of trade costs or barriers, with $0 \leq \varphi \leq 1$, γ is the share of final production sold either to the source or to the host market, and λ is the probability of FDI expropriation by the host country government.

For a firm that does not go for vertical FDI, ex-ante net revenues are:

$$R^{NE} = (1-\gamma)\varphi p + \gamma p - c - a - A \qquad (11)$$

The risk-neutral firm will make the vertical FDI if ex-ante net revenues are larger under multinational production, that is if:

$$(1-\alpha)a + (1-\varphi)\gamma p > A + (1-2\gamma)\lambda\varphi p + 2\gamma\lambda p \qquad (12)$$

where the terms on the left hand side accounts for the unit labour costs savings of fragmentation and the trade cost saving of having two productive locations; while the terms on the right hand side represent the additional unit administrative cost, and the expropriation risk for the share of output sold to third markets, and the source and host market respectively. One can check that vertical FDI is more likely when relative factor

endowments are different (small α), when the probability of expropriation is lower, and trade costs are larger (in this last case, contrary to the common result in the literature).

4. An empirical model, data and estimation methodology

Let us now move to the empirical model. In the simple setup described above, HFDI is only market-seeking, hence there is no role for factor-endowments nor income differentials. However, one could expect more HFDI flows between countries that are more similar in terms of per-capita GDP, or of relative factor endowments. This is related to the so-called "Linder" hypothesis: the more similar countries are in terms of average income, the more similar preferences and demand patterns are, hence the larger intra-industry trade among those countries. This argument can be extended to the case of horizontal FDI, which is implemented in order to sell in the host market and is more likely to occur among countries that are similar in demand patterns.

As for VFDI, the simple setup of section 3 does not allow - under perfect competition - any role for market size: typically, one assumes a large number n of identical countries such that $\gamma = 1/n$. However, if one moves to an imperfect competition setting, market size matters for the choice of productive locations, and the larger is a country's dimension, the more convenient it is to locate production there if this is associated with trade cost savings. For instance, Braconier et al. (2005) show that vertical FDI in the "knowledge capital" model targets large host countries if a share of the final output is not re-exported. Drawing on that intuition, larger vertical FDI would be associated with larger economic dimensions of both the source and the host country, under our assumptions concerning trade costs.

In terms of an empirical equation we approximate market size with GDP of the source and the host country, and labour costs a and a* with per capita income in the source and the host country. The empirical equation looks like an "augmented" gravity model in its canonical multiplicative form:[8]

[8] See for instance: Head (2003).

FDI = F [GDP source * b1 x GDP host *b2 x pcgdp source*b3 x pcgdp host * b4] (13)

As we consider FDI flows from the North to the South, we would expect that b1, b2, b3, are positive under vertical and horizontal FDI, while b4 is positive under horizontal and negative under vertical FDI, as ceteris paribus Northern entrepreneurs look for lower labour costs in the Southern locations.

Let us now introduce the effect of the political regime. We test whether different political regime are more likely to be associated with vertical or horizontal FDI inflows. A rationale for that is the probability of expropriation is different between horizontal and vertical FDI, and is variable across political regimes. For the sake of simplicity, we assume: first, that democracy is always associated with greater protection of property rights and lower expropriation risk, as argued by Persson and Tabellini (2006b) and Jensen (2006) among others; second, that the probability of expropriation is higher for horizontal than for vertical FDI in autocracies.

In terms of the empirical model, we interact a political-regime dummy with the host-country variables in equation (13) and get :

FDI = G [GDP source * b1 x GDP host *(b2 + b3D)x pcgdp source*b4 x pcgdp host * (b5 + b6D)] (14)

Where D is a dummy that takes value one for a democratic host country, zero otherwise. As before, we expect that b1, b2, b3, b4 are positive under vertical and horizontal FDI; in addition, we expect here that the sum of b5 and b6 is positive under horizontal and negative under vertical FDI.

We estimate log-log versions of equations (13) and (14), with gross bilateral FDI flows from Northern (source) to Southern (host) countries. We adopt a random-effects Tobit estimator, which has the advantage of preserving the bilateral 'zero' FDI entries. If potential bilateral North-South flows do not always materialize due to investment indivisibilities, or are not recorded as actual FDI due to statistical conventions, it can well be that the reported entry of gross FDI inflow is zero, or even negative (e.g. in the case of

large repatriated earnings from South to North country exceeding inflows of equity and intra-firm loans to emerging host countries). As we are interested in gross North-South inflows, the Tobit model allows us to estimate log-log equations without losing the information associated with negative and zero entries in the bilateral North-South FDI matrix, provided a transformation is adopted (see Appendix C). If 'zeros' represent true lack of FDI, dropping this information would lead to biased estimates of the true model parameters (see Razin et al, 2005).

The choice between a fixed-effects and a random-effects model, provided individual pair-country effects are likely to be relevant in this case, is related to the shape of the panel: if the time-dimension of the panel is very large relative to the spatial dimension, then it is the fixed-effects model that is consistent. However, panel datasets often consist of large cross-sections observed over a short period of time, which is also our case (n=364 bilateral FDI flows; t=13 years). In this case, the fixed-effects estimator produces inconsistent results: this is known in the literature as the 'incidental parameter' problem (Baltagi, 2001). Hence a random-effects Tobit model, "censored" with a zero threshold for all values below the minimal actual size of positive FDI gross inflows, is probably more suited to estimate equations like (13) and (14) (see for instance Peracchi, 2004). In terms of the empirical literature on FDI, we estimate a "gravity-type" model modified to account for country-pair individual effects and time dummies.

We use gross bilateral FDI flow data, obtained from the OECD's International Direct Investment Database (2006), which provides data on bilateral FDI inflows and outflows over the period 1980-2004 (and with a reasonable coverage for 1992-2004). Other authors use either data on affiliate sales or FDI stock data, which are usually less homogeneous/less complete but could match the equilibrium allocation of FDI better. However, the time span here covers the most recent globalization wave of the 1990s and early 2000s, hence our flow data can be seen as describing the response of international investors to the new opportunities created after the end of the Cold War and the First Gulf War. Each OECD member country reports bilateral "outflows to" and "inflows from" other members and a number of partner countries. All values were originally expressed in reporting countries' own national currency units, which were then converted into constant 2000 USD using OECD's yearly average exchange rates and the US GDP deflator. There

are 14 developed and 25 emerging countries in our sample (see Appendix A for list of countries in sample). Other data on the explanatory variables come from various sources (see Appendix B). In order to keep the negative and zero observations, we follow Yeyati et al. (2003) and use a transformation of the gross inflows as the dependent variable (see Appendix C for the details).

As for the assessment of the political regime, we follow Persson (2005) who uses a democracy dummy variable based on the index variable Polity2 from the POLITY IV Project. Polity2 is a composite index (ranging from minus 10 to 10) that measures the quality of the democracy in a country.[9] Our dummy variable takes the value of 1 when the host country makes a *permanent* transition to democracy (i.e. with *no further regime reversal* during the observed period). For the date of transition to democracy, we choose the year when the Polity2 index starts taking values larger than zero.

5. Empirical results

The random-effects Tobit estimator we use performs Gauss-Hermite quadrature to compute the log likelihood and its derivatives, hence we checked all our results for quadrature sensitivity. All results reported are stable, thus they can be confidently interpreted.[10] We also perform log-likelihood tests of the joint significance of the country-pair effects, which do not reject the hypothesis of random effects. The results of the Tobit regression for equation (13) are reported in Table 1. The economic dimension of both source and host countries are significant and positive determinants of North-South FDI flows. However, while per capita GDP of the source country is positive and statistically significant, per capita GDP of the host country is not. This indicates that while richer countries do invest more FDI in the emerging markets, there is no evidence that the poorer among host countries are the ones that attract most of these flows. These findings are robust to the inclusion of continent dummies in the regression. Therefore, it

[9] The Polity2 index is a composite index of the following underlying variables: competitiveness of executive recruitment, openness of executive recruitment, constraint on the chief executive, regulation of participation and competitiveness of political participation.

[10] We used *STATA-Release 9* to perform our tobit regressions. *STATA* recommends that the results from the model estimated by 12 quadratures (default) points be compared to results from 16 quadrature points. If the relative difference in the estimated coefficients is larger than 1%, then the coefficients are not stable. If this is the case, it may be that the random-effects estimator is the wrong model.

is not clear from Table 1 whether North-South FDI flows are mostly of the 'vertical' or 'horizontal' type.

We then add more control variables to the benchmark model, some of them commonly used as determinants of FDI. In Table 2, the benchmark model is augmented by the log of trade flows between country pair. In order to avoid an endogeneity bias, this variable is lagged by one-period. Theoretically, trade and FDI are related and they are partly driven by similar factors, hence the economic impact of some variables, such as countries' size are significantly diminished. FDI inflows into emerging markets are positively correlated with trade flows: country-pairs that trade more also exchange larger FDI flows. However, per capita GDP in the host country remains not significant.

In Table 3, we introduce privatization proceeds in the host country as a control variable. First, privatization policies might directly affect FDI as they influence the supply of asset potentially available for foreign investors; second, privatization proceeds are an "objective" measure of market-oriented reform in emerging economies (in the terminology introduced by Campos and Horvath, 2006).[11] Privatization proceeds are positively and significantly correlated with FDI inflows as expected, and controlling for privatization all GDP and per capita income variables are statistically significant. Per capita GDP in the host country has a positive sign, suggesting that North-South FDI flows match the horizontal pattern better.

In Table 4, we also control for EU accession with a dummy for countries that start EU membership negotiations. The EU dummy can be also viewed as a proxy for economic and democratic reform. The results on per capita GDP in the host country are inconclusive, hence we cannot tell whether North-South FDI flows are vertical or horizontal.

In Table 5 we interact the democracy dummy variable with GDP and GDP per capita of host economy as suggested by equation (14). The results in the first column indicate a negative and statistically significant GDP per capita of the host economy. This indicates that autocratic countries tend to receive relatively more vertical FDI. On the other hand, GDP per capita of the host country interacted with democracy dummy variable is

[11] Carstens and Toubal (2003) suggest a measure of privatization method in Central Eastern European countries, but based on subjective evaluations.

positive, statistically significant, and that the sum of b5 and b6 is positive. This suggests that democratic host countries tend to receive relatively more horizontal FDI. These results are robust to the inclusion of EU control variables, i.e. the EU dummy and an interaction term between privatization proceed and EU membership negotiation. Although the GDP interacted with democracy dummy is statistically insignificant, the positive and statistically significant coefficient for GDP indicates that size also matters: in case of autocratic countries, it is the larger ones that receive more FDI.[12]

Finally, Table 6 shows that these results are robust to the inclusion of a more refined intercept dummy that captures the impact on the constant of the *degree* of democratization of the host countries (that is, the original value of the Polity2 variable ranging to minus 10 to 10, from less to more democratic countries). Furthermore, the intercept dummy is statistically significant at the 1% level, suggesting that we have both an overall positive effect of democracy on the *volume* of FDI inflows, and an effect on the *nature* of FDI, more oriented towards horizontal in democracies and more towards vertical in autocracies.

Overall, the empirical analysis shows that using only the standard control variables from the literature, it is difficult to differentiate between types of FDI inflows to emerging economies. However, the features of the political regime (in our simple case, democracy vs. autocracy) seem to affect the nature of FDI flows, beyond their volume. The effect of democracy (autocracy) in promoting horizontal (vertical) FDI could be explained through its effect on the uncertainty surrounding property rights in the host economy. According to this interpretation, not only democracy reduces the risk of expropriation in the host economy, but it could be less costly for an autocracy to expropriate horizontal foreign investment directed to its domestic market, rather than vertical FDI that is partially intended for re-exporting. Vertical FDI increases the host country's trade dependency, and make it more vulnerable to trade retaliation in the aftermath of nationalization (or of

[12] We have tested whether these findings are mainly driven by a China-effect, and replicated the regression excluding China. While we still find evidence that democratic (autocratic) countries receive more horizontal (vertical) FDI, the coefficients are estimated less precisely, and are significant at the 10% level. However, we have few autocracies in the emerging country sample (one sixth of the total) and reducing them further could make the exercise less reliable.

default, as originally suggested by Aizenman, 1991). As foreign investors anticipate that, they allocate relatively more vertical FDI to autocratic countries.[13]

An alternative interpretation is that the effect of the political regime on FDI works through its differential effects on labor standards. Rodrik (1999) reports that democracies pay higher wages. In his framework, the effect of democracy should have a direct effect on wages. Moreover, Palley (2005) shows that if the effect of democracy works through labor standards, it would not be immediately captured by per capita GDP nor wages. It might then be the case that autocracies can ensure more "stable" and "less conflicting" labour-capital relations, at least to the point the political regime is viable. This could provide relatively more incentive for vertical FDI in autocracies, as vertical FDI to emerging countries is typically more labour intensive.

6. Conclusions

In this study, we focus on the relationship between democracy and the nature of foreign direct investment flows from developed countries to emerging market countries. In order to address this question, we introduce an expropriation risk possibly related to the political regime in a simple model of FDI where horizontal FDI is mainly "market-seeking", while vertical FDI is mainly "cost-saving". However, as recent evidence suggests that market-seeking and cost-saving motivations for VFDI could co-exit, while the "Linder effect" could matter for HFDI, we fix the empirical equations accordingly.

We test these equations using random-effect Tobit regressions on a set of bilateral FDI flows from 14 developed countries to 24 emerging market countries over 1992-2004. This estimation technique has the advantage of preserving the 'zero' observations of bilateral FDI flows. When we model North-South FDI flows as a function of size and per capita income of source and host countries only, plus a set of time-invariant country-pair specific effects, we cannot discriminate between the vertical and the horizontal FDI hypothesis. This is true even when we augment our benchmark equation to control for

[13] Recall that we do not consider the natural-resource motivation for FDI: if also resource-seeking FDI is classified as "vertical", this interpretation would have to be qualified. Consequently, fully oil-dependent emerging economies are not considered in our country sample.

continent dummies, lagged bilateral trade flows, privatization proceeds and a EU negotiation dummy.

We then interact a democracy dummy variable, as a proxy for political regime in the host country, with GDP and per capita income of the host countries. Democracies seem to attract relatively more FDI of the horizontal type, whereas non-democratic regimes appear to receive relatively more FDI in the form of vertical FDI. Furthermore, when we add an intercept dummy that proxies for the "degree of democratization", we also find that more advanced democracies get larger FDI whatsoever. We conclude that the political regime of the host country has an effect both on the amount and on the nature of FDI inflows.

One explanation is that democracy reduces all sorts of political expropriation risk. Moreover, if an autocratic country find it less costly to expropriate horizontal rather than vertical FDI, and foreign investors anticipate that, then autocracies could attract relatively more "vertical" investment.

In future research, we plan consider the 'control' motivation for FDI more carefully. The multinational may prefer FDI over other forms of investment since there are sizable information costs/asymmetries in the host country market, such as low intellectual property rights protection. In future research, we plan to elaborate on this aspect of FDI. We do not consider here natural-resource oriented FDI either. Moreover, this study postulates a simple relationship between the (amount of) different types of FDI and the political regime. In future research, we plan to examine a more complex relationship where the *stock* of FDI may affect the dynamics of the political regime in host countries. Further empirical extensions would move in the direction of improving our FDI measure and enlarging the country sample; checking for robustness when wage compensation is used instead of per capita income; testing reliable (and objective) direct measures of expropriation risk; and refining the political regime variable allowing, for instance, to distinguish between presidential and parliamentary democracies.[14]

[14] This is difficult here because almost all parliamentary democracies in our sample are in Central Eastern Europe, hence there is an overlap with the regional dummy effect.

Table 1. Benchmark Empirical Model

Dependent variable: FDI Inflows	I	II
GDP of source	2.29	2.31
	(0.21)***	(0.20)***
GDP of host	1.19	1.79
	(0.22)***	(0.26)***
per capita GDP of source	3.07	3.20
	(0.82)***	(0.81)***
per capita GDP of host	0.48	0.29
	(0.28)*	(0.28)
Time dummy variables	*Yes*	*Yes*
Continent dummies	*No*	*Yes*
N (uncensored, censored)	3780	3780
	(2925, 855)	(2925, 855)
Log-likelihood	-11404.23	-11394.48
Likelihood-ratio test : χ^2 (probability)	288.13 (0.00)	261.23 (0.00)

Standard errors in parentheses. * significant at 10%, ** significant at 5% and *** significant at 1%.

Table 2. The effect of bilateral trade on FDI inflows

Dependent variable: Inflows	I	II
GDP of source	0.47	0.46
	(0.27)*	(0.27)*
GDP of host	-0.04	0.35
	(0.23)	(0.27)
per capita GDP of source	2.81	2.92
	(0.74)***	(0.73)***
per capita GDP of host	0.56	0.21
	(0.26)**	(0.28)
Lagged bilateral trade	2.12	2.14
	(0.23)***	(0.24)***
Time dummy variables	*Yes*	*Yes*
Continent dummies	*No*	*Yes*
N (uncensored, censored)	3565	3565
	(2765, 800)	(2765, 800)
Log-likelihood	-10721.219	-10714.463
Likelihood-ratio test : χ^2 (probability)	145.39 (0.00)	127.98 (0.00)

Standard errors in parentheses. * significant at 10%, ** significant at 5% and *** significant at 1%.

Table 3. The effect of privatization proceeds on FDI inflows

Dependent variable: Inflows	I	II
GDP of source	2.18	0.44
	(0.21)***	(0.27)*
GDP of host	0.94	-0.18
	(0.24)***	(0.28)
per capita GDP of source	2.31	2.08
	(0.84)***	(0.73)***
per capita GDP of host	0.59	-0.08
	(0.31)***	(0.36)
Privatization proceeds	0.34	0.35
	(0.11)***	(0.11)***
Lagged bilateral trade		2.15
		(0.24)***
Time dummy variables	*Yes*	*Yes*
Continent dummies	No	Yes
N	2665	2599
Log-likelihood	-8086.996	-7840.5811

Standard errors in parentheses. * significant at 10%, ** significant at 5% and *** significant at 1%.

Table 4. The effect of EU membership negotiations

Dependent variable: Inflows	I	II
GDP of source	2.31	2.19
	(0.20)***	(0.21)***
GDP of host	1.85	1.19
	(0.26)***	(0.28)***
per capita GDP of source	3.21	2.33
	(0.79)***	(0.83)***
per capita GDP of host	0.04	0.37
	(0.29)	(0.40)
EU negotiations dummy	1.95 (0.59)***	1.11 (0.66)*
Privatization proceeds		0.30
		(0.11)***
Time dummy variables	*Yes*	*Yes*
Continent dummies	*Yes*	*Yes*
N	3780	2665
(uncensored, censored)	(2925, 855)	(2130, 535)
Log-likelihood	-11389.08	-8084.66
Likelihood-ratio test : χ^2 (probability)	237.68 (0.00)	166.24 (0.00)

Standard errors in parentheses. * significant at 10 percent, ** significant at 5 percent and *** significant at 1 percent.

Table 5. The effect of democracy on FDI inflows

Dependent variable: Inflows	I	II	III
GDP of source	2.18	2.18	2.19
	(0.21)***	(0.20)***	(0.21)***
GDP of host	1.34	1.38	1.36
	(0.44)***	(0.44)***	(0.44)***
per capita GDP of source	2.29	2.28	2.27
	(0.83)***	(0.82)***	(0.82)***
per capita GDP of host	-2.02	-1.95	-2.00
	(0.87)**	(0.87)**	(0.87)**
GDP of host * Democracy	-0.53	-0.46	-0.45
	(0.50)	(0.50)	(0.50)
per capita GDP of host * Democracy	2.68	2.48	2.56
	(0.91)***	(0.92)***	(0.92)***
Democracy	-4.41	-4.67	-5.52
	(14.63)	(14.58)	(14.60)
Privatization proceeds	*0.38*	*0.35*	0.41
	*(0.11)****	*(0.11)****	(0.12)***
EU negotiations dummy		*0.92*	*3.32*
		(0.65)	*(1.79)***
Privatization*EU dummy			*-0.39*
			(0.27)
Time dummy variables	*Yes*	*Yes*	*Yes*
Continent dummies	*No*	*No*	*No*
N (uncensored, censored)	2665	2665	2665
Log-likelihood	-8079.95	-8078.96	-8077.93
Likelihood-ratio test : χ^2 (probability)	170.14 (0.00)	161.37(0.00)	162.68 (0.00)

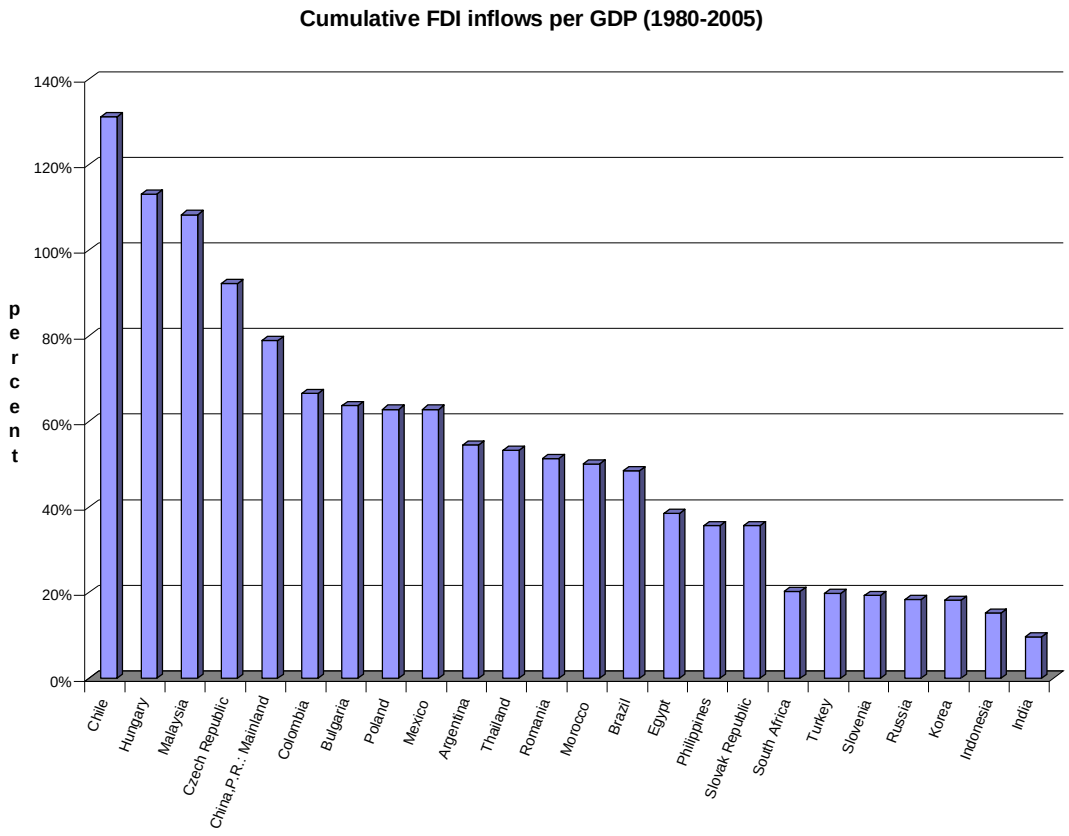
Standard errors in parentheses. * significant at 10%, ** significant at 5% and *** significant at 1%.

Table 6. The effect of democracy on FDI inflows (Polity 2)

Dependent variable: Inflows	I	II
GDP of source	2.21	2.21
	(0.20)***	(0.20)***
GDP of host	2.30	2.30
	(0.40)***	(0.40)***
per capita GDP of source	2.34	2.34
	(0.81)***	(0.81)***
per capita GDP of host	-3.07	-3.03
	(0.98)***	(0.98)***
GDP of host * Democracy	-1.07	-1.05
	(0.30)***	(0.30)***
per capita GDP of host * Democracy	3.47	3.40
	(0.96)***	(0.97)***
Degree of democratization (Polity 2 variable)	0.34	0.34
	(0.13)***	(0.14)***
Privatization proceeds	*034*	*0.33*
	*(0.10)***	*(0.11)****
EU negotiations dummy		*0.34*
		(0.68)
Time dummy variables	*Yes*	*Yes*
Continent dummies	*Yes*	*Yes*
N (uncensored, censored)	2665	2665
Log-likelihood	-8072.47	-8072.34
Likelihood-ratio test : χ^2 (probability)	149.82 (0.00)	148.73 (0.00)

Standard errors in parentheses. * significant at 10%, ** significant at 5% and *** significant at 1%.

Figure 1


Cumulative FDI inflows per GDP (1980-2005)
percent
140%
120%
100%
80%
60%
40%
20%
0%
Chile
Hungary
Malaysia
Czech Republic
China,P.R.: Mainland
Colombia
Bulgaria
Poland
Mexico
Argentina
Thailand
Romania
Morocco
Brazil
Egypt
Philippines
Slovak Republic
South Africa
Turkey
Slovenia
Russia
Korea
Indonesia
India

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APPENDIX A

Our dataset includes bilateral FDI data for 14 North source countries and for 24 South host countries over 1992-2004 (336 cross-sections by 13 years).

List of countries in sample:

Source countries

Austria, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Portugal, Spain, Sweden, Switzerland, UK and US

Host Countries (year of permanent democratization according to the POLITY IV dataset of the University of Maryland)

Argentina (1983), Bulgaria (1990), Brazil (1985), Chile (1989), China (-), Colombia (1957), Czech Republic (1993), Egypt (-), Hungary (1989), Indonesia (1999), India (1950), South Korea (1987), Mexico (1994), Malaysia (1957), Morocco (-), Philippines (1986), Poland (1989), Russia (1992), Romania (1990), South Africa (1910), Slovakia (1993), Slovenia (1991), Thailand (1992) and Turkey (1983).

APPENDIX B

Data definition and sources

Gross FDI inflows: Foreign Direct Investment inflows from source country to host country in constant 2000 US dollars (OECD International Investment Statistics Yearbook, 2006).

GDP: Gross domestic product in constant 2000 US dollars USD (World Economic Outlook Database, IMF).

per capita GDP: Gross domestic per capita in constant 2000 US dollars (World Economic Outlook, IMF).

Bilateral trade: Bilateral exports from source country to host country in constant 2000 US dollars USD (Direction of Trade Statistics, IMF).

Education: Average years of schooling of the total population age 25 and over, (Barro-Lee, 2000).

Privatization proceeds: Privatization proceeds in constant 2000 US dollars (World Bank).

Democracy dummy: dummy variable taking value one when the political regime is a democracy, zero otherwise.

EU dummy: dummy taking value one for the year an emerging country starts EU membership negotiations and afterwards (and zero for the period before).

APPENDIX C

In order to avoid the loss of valuable information, the dependent variable is transformed. For large values of $inflw_{it}$, ln ($inflw_{it}$ +1) ≈ ln($inflw_{it}$). For small values ln ($inflw_{it}$ +1) ≈ $inflw_{it}$, hence this transformation resembles a semi-log relationship. Different versions of this transformation were used by Eichengreen and Irwin (1996), Eaton and Tamura (1994) and Wei (2000). This transformation takes care of zero observations, leaving out negative observations of direct investment. Yeyati et al. (2003) offer a solution to this problem by the following transformation:

$inflw_{it}$ = ln [|$inflw_{it}$ |+1] [sign ($inflw_{it}$)]

By this transformation, negative values are retained, and the coefficients from a linear regression can still be interpreted as elasticities for large values of the dependent variable. For this reason, we measure FDI inflows in dollars (not millions) and hence adding 1 is equivalent to adding one dollar to gross inflows.